

REMARKS

The Applicants originally filed Claims 1-20. Claims 15-19 were reintroduced in the present application. The Applicants previously added new Claims 21-30 and have presently amended Claims 15, 24, and 25. Accordingly, Claims 15-19 and 21-30 are currently pending in the present application.

I. Rejection of Claims 15 and 17-19 under 35 U.S.C. §102

These claims are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,194,278 to Rangarajan, *et al.* ("Rangarajan"). However, Rangarajan fails to anticipate independent Claim 15 and its dependent Claims 17-19, including new claims 21-30 for the following reasons.

Rangarajan fails to teach a halo implant that follows at least a portion of a contour of the hard mask and wherein the thickness of the hard mask terminates at a periphery of the gate structure. To the contrary, the hard mask taught in Rangarajan clearly teaches a hard mask that extends well beyond the periphery of the gate structures. In support thereof, the Examiner's attention is respectfully directed to FIGURE 7 where a conventional hard mask is illustrated. As clearly shown by the figure, the hard mask 120 extends well beyond the periphery of the gate structure, and as such, its thickness does not terminate at the periphery of the gate structure.

Accordingly, Rangarajan fails to disclose each and every element of independent Claim 15 and its dependent Claims 17-19 and new Claims 21-30.

II. Rejection of Claim 16 under 35 U.S.C. §103

This claim is rejected under 35 U.S.C. §103 as being unpatentable over Rangarajan. However, as discussed above, Rangarajan fails to teach a halo implant that follows at least a portion of a contour of the overlying hard mask whose thickness terminates at the periphery of the gate structure. Furthermore, however, there is no suggestion of arriving at such a structure. The hard mask 120 taught in Rangarajan is a nitride hard mask (Col. 5, lines 1-9) and other than this brief explanation, there is no other teaching or suggestion in the reference that would even remotely suggest that the thickness of the hard mask terminates at the periphery of the gate structure. As such, there is simply no motivation for one skilled in the art to arrive at the presently recited structure absent using hindsight and the Applicants specification, which, of course, is improper.

The Examiner also concedes that Rangarajan fails to teach or suggest silicon dioxide being used as a hard mask layer and, therefore, provides an official notice asserting that silicon dioxide is a well known masking material which can also be used on top of a gate to protect against ion implantation damages. However, the combination of Rangarajan and the official notice fails to support a *prima facie* case of obviousness of Claims 15 and 16 for the reasons stated above because the official notice does not cure the deficient teachings of Rangarajan.

Therefore, Rangarajan fails to teach or suggest each and every element of Claim 15 and its dependent Claim 16 and fails to establish a *prima facie* case of obviousness of Claim 15 and its dependent Claim 16. Consequently, the Applicants request the Examiner to withdraw the §103 rejection with respect to Claim 16.

For at least the same reasons, Rangarajan also fails to support a *prima facie* case of obviousness of new Claims 21-30 because these claims are also dependent on Claim 15.

III. Additional References Made of Record

The Applicants believe that the additional references made of record and not relied upon by the Examiner are not particularly pertinent to the claimed invention, but the Applicants retain the right to address these references in detail, if necessary, in the future.

IV. Conclusion

In view of the foregoing remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 15-19 and 21-30.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application.

Respectfully submitted,

HITT GAINES, P.C.

A handwritten signature in black ink, appearing to read "Charles W. Gaines", written in a cursive style.

Charles W. Gaines
Registration No. 36,804

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P.O. Box 832570
Richardson, Texas 75083
(972) 480-8800